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Expression, purification and characterization of an active C491G variant of ferredoxin sulfite reductase from *Synechococcus elongatus* PCC 7942

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Running Title: Characterization of a C491G variant of ferredoxin sulfite reductase

Keywords: Sulfite reductase, *Synechococcus elongatus* PCC 7942, siroheme, iron sulfur clusters, redox potential.

Highlights

- Native and $C_{491}G$ variant of ferredoxin sulfite reductase both contains a high spin S = 5/2 siroheme Fe^{3+} and a low spin S = 1/2 $[4Fe\text{-}4S]^{2+/1+}$ cluster.
- The redox potential of the $[4Fe\text{-}4S]^{2+/1+}$ cluster in the $C_{491}G$ variant ferredoxin sulfite reductase is 58 mV more positive than in the native enzyme.
- The $C_{491}G$ variant ferredoxin sulfite reductase shows methyl viologen and ferredoxin 1 activity, albeit at a lower rate than the native enzyme.